IN THE CLAIMS:

Please cancel claims 4, 5 and 30-32 without prejudice to or disclaimer of the subject matter contained therein.

Please replace claims 1-3 and 6-29 as follows:

1. (Amended) A process for isolating a target biological material contained in a sample, comprising:

contacting said target biological material with at least a capture phase, and

detecting a complex of said capture phase and said target biological material,

wherein the capture phase of said process consists of at least one first hydrophilic polymer, and first complexing groups, these groups being covalently bound to said first hydrophilic polymer and coordinated by a first transition metal, which is chelated to a first biological species having specific affinity to the target biological material.

2. (Amended) The process according to Claim 1, wherein the capture phase comprises a marker for use as a detection phase for detecting said biological material.

3. (Amended) The process according to Claim 2, wherein the detection phase consists of a second hydrophilic polymer, and second complexing groups, which are coordinated to a second transition metal, which is linked to a second biological species having specific affinity to the target biological material, and a marker.

6. (Amended) The process according to Claim 1, wherein the first hydrophilic polymer is a functionalized polymer obtained by polymerization of a water-soluble monomer, of an acrylamide, of an acrylamide derivative, of a methacrylamide or of a methacrylamide derivative, having at least one crosslinking agent and at least one functional monomer.

7. (Amended) The process according to Claim 3, wherein the second hydrophilic polymer is a functionalized polymer obtained by polymerization of a water-soluble monomer,

of an acrylamide, of an acrylamide derivative, of a methacrylamide or of a methacrylamide derivative, having at least one crosslinking agent and at least one functional monomer.

8. (Amended) The process according to Claim 6, wherein the water-soluble monomer is selected from the group consisting of N-isopropylacrylamide, N-ethylmethacrylamide, N-n-propylacrylamide, N-n-propylmethacrylamide, N-n-isopropylmethacrylamide, N-cyclopropylacrylamide, N,N-diethylacrylamide, N-methyl-N-isopropylacrylamide and N-methyl-N-n-propylacrylamide.

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9. (Amended) The process according to Claim 6, wherein the functional monomer corresponds to formula I below:

$CH_2=C(Z)-(X)_m-(R)_p-(Y)_n$ (I)

wherein: Z represents H, a C1-C5 alkyl radical or a benzyl, -COOH or -CO-NH-$CH(CH_3)_2$ radical,

Y represents -CH_2-COOH, -$N(CH_2$-$COOH)_2$, -N(CH-COOH) -N(CH-COOH) (CH_2-COOH), or -$N(CH_2$-CH_2-$NH_2)_2$
|
(CH_2-COOH)

X represents -$NH(CH_2$-CH_2-), --$N(CH_2$-CH_2-$)_2$, -N(CH_2-COOH) (CH_2-CH_2-), or CH(COOH)-,

R represents a linear hydrocarbon-based chain, optionally interrupted with at least one hetero atom such as O or N,

m and p are each an integer which, independently of each other, are equal to 0 or 1, and

n is an integer ranging between 1 and 3.

10. (Amended) The process according to Claim 9, wherein the functional monomer is chosen from carboxylic derivatives, optionally containing nitrogen, itaconic acid, acrylic derivatives and methacrylic derivatives.

11. (Amended) The process according to Claim 1, wherein the capture phase is in microparticulate form and the average particle size is not more than 5 μm.

12. (Amended) The process according to Claim 3, wherein the detection phase is in microparticulate form and the average particle size is not more than 5 μm.

13. (Amended) The process according to Claim 1, wherein the capture phase also comprises a flat or particulate support.

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14. (Amended) The process according to Claim 13, wherein the support is particulate and consists of an organic or inorganic, hydrophilic or hydrophobic core.

15. (Amended) The process according to Claim 14, wherein said core is selected from the group consisting of polystyrene, silica and metal oxides.

16. (Amended) The process according to Claim 14, wherein said core also contains a magnetic compound.

17. (Amended) The process according to Claim 14, wherein said core is coated with said first hydrophilic polymer, the first hydrophilic polymer being linear.

18. (Amended) The process according to Claim 14, wherein said core is coated with said first hydrophilic polymer, said first hydrophilic polymer being particulate.

19. (Amended) The process according to Claim 1,wherein the first hydrophilic polymer is poly(N-isopropylacrylamide) and the complexing groups are derived from itaconic acid or from maleic anhydride-co-methyl vinyl ether.

20. (Amended) The process according to Claim 3, wherein the second hydrophilic polymer is poly(N-isopropylacrylamide) and the complexing groups are derived from itaconic acid or from maleic anhydride-co-methyl vinyl ether.

21. (Amended) The process according to Claim 1, wherein the first transition metal is selected from the group consisting of zinc, nickel, copper, cobalt, iron, magnesium, manganese, lead, palladium, platinum and gold.

22. (Amended) The process according to Claim 3, wherein the second transition metal is selected from the group consisting of zinc, nickel, copper, cobalt, iron, magnesium, manganese, lead, palladium, platinum and gold.

23. (Amended) The process according to Claim 1, wherein the contacting of the first biological species with the capture phase is carried out at a pH above or equal to the isoelectric point of said first biological species.

24. (Amended) The process according to Claim 3, wherein the contacting of the second biological species with the detection phase is carried out at a pH above or equal to the isoelectric point of said second biological species.

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25. (Amended) The process according to Claim 1, wherein the first biological species is rich in at least one of histidine and cysteine.

26. (Amended) The process according to Claim 3, wherein the second biological species is rich in at least one of histidine and cysteine.

27. (Amended) The process according to Claim 1, wherein an agglutination reaction is used.

28. (Amended) The process according to Claim 2, wherein the marker for the detection phase comprises a material selected from the group consisting of an enzyme, biotin, iminobiotin, a fluorescent component, a radioactive component, a chemiluminescent component, an electron-density component, a magnetic component, an antigen, a hapten and an antibody.

29. (Amended) The process according to Claim 2, wherein the enzyme linked immunosorbent assay (ELISA) technique is used.

Please add new claim 33 as follows:

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--33. The process according to claim 8, wherein the monomer is N-isopropylacrylamide (NIPAM).--